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EXAMINER	
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ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/643,983	Applicant(s) FRENGER ET AL.	
	Examiner Joseph D. Torres	Art Unit 2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23,25-47 and 49-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23,25-47 and 49-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 August 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4,5*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. The Examiner would like to point out that since Group II has been amended so that the claims in Group II now depend from claims in Group I, the restriction requirement is withdrawn. Should the Applicant decide to file a divisional to pursue the subject matter of Group II and if the claims in Group II are found allowable, the Applicant will be required to file a Terminal Disclaimer.

All claims 1-23, 25-47 and 49-53 remain pending in the case and will be examined in the current office action.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: '50' in line 19 on page 13. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: '30' in Figure 4. A proposed drawing correction, corrected drawings, or amendment to the specification

to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because the abstract exceeds 150 words. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Odenwalder; Joseph P. (US 6396804 B2).

35 U.S.C. 102(e) rejection of claim 1.

Odenwalder teaches a method for processing data packets for transmission over a communications channel (Figures 2 and 3 and col. 5, lines 36-38 in Odenwalder teach a method for processing 20 ms data frames for transmission over a communications channel; Note: a frame is a time slot in which a data transmission unit or a packet is transmitted but is also used interchangeably with data transmission unit or packet), comprising: pre-processing data packets for transmission over the communications channel including performing a first coding operation on those data packets to form pre-processed data packets (CRC Generators 130 and 140, Tail Bit Generators 132 and 142, ¼ Rate Convolutional Encoders 134 and 144 and Block Interleavers 136 and 146 in Figure 2 of Odenwalder are used for pre-processing data packets for transmission over the communications channel including performing a first coding operation on those data packets to form pre-processed data packets); detecting a current condition (col. 11, lines 11-16 in Odenwalder teaches that a target error rate is set and if the actual error rate exceeds the target error rate, adjustments are implemented; Note: error rate is a current channel condition and the step of testing whether the actual error rate exceeds the target error rate is a step for monitoring the current error rate; the Examiner asserts that one of ordinary skill in the art at the time the invention was made would have know that current error rate is a detected quantity and requires specific equipment for detecting the error rate; hence Odenwalder explicitly suggests detecting error rate for the purposes of testing whether the actual error rate

exceeds the current target error rate channel condition); and processing the pre-processed data packets based on the detected current condition to form processed data packets ready for transmission over the communications channel (Variable Starting point Repeaters 138 and 148, BPSK and QPSK Mappers 139 and 149 and Modulator 104 in Figure 2 in Odenwalder are a processor for processing the pre-processed data packets; col. 11, lines 11-20 in Odenwalder teach that Gain Adjust Circuits 152-158 within Modulator 104 in Figure 4 are adjusted based on the detected current target error rate channel condition to form processed data packets ready for transmission over the communications channel), wherein the pre-processing does not depend on the current condition (the gain adjust in Modulator 104 in Figure 4 of Odenwalder is carried out independently of CRC Generators 130 and 140, Tail Bit Generators 132 and 142, ¼ Rate Convolutional Encoders 134 and 144 and Block Interleavers 136 and 146 in Figure 2 of Odenwalder used for pre-processing data packets).

35 U.S.C. 102(e) rejection of claim 2.

Note: error rate is a current condition of the communications channel.

35 U.S.C. 102(e) rejection of claim 3.

Col. 11, lines 11-16 in Odenwalder teaches that a target error rate is set and if the actual error rate exceeds the target error rate, adjustments are implemented; Note: error rate is a current channel condition and the step of testing whether the actual error rate exceeds the target error rate is a step for monitoring the current error rate; the Examiner

asserts that monitoring of error rate is a continuous process that takes place during a current transmission time interval.

35 U.S.C. 102(e) rejection of claim 4.

CDMA is a wireless communication transmission service hence the error rate is related to the wireless communication transmission service since it occurs in the communication channel for the wireless communication transmission service.

35 U.S.C. 102(e) rejection of claim 5.

Convolutional encoders 134 and 144 in Figure 3 of Odenwalder are fixed ¼ rate convolutional encoders.

35 U.S.C. 102(e) rejection of claim 6.

Block Interleavers 136 and146 in Figure 3 of Odenwalder are used for combining blocks into block-interleaved data.

35 U.S.C. 102(e) rejection of claims 7 and 8.

CRC Generators 130 and 140 in Figure 3 of Odenwalder add supplemental redundant bit prior to block interleaving. Note: CRC is error detection and correction information.

35 U.S.C. 102(e) rejection of claim 9.

CRC Generators 130 and 140, Tail Bit Generators 132 and 142, ¼ Rate Convolutional Encoders 134 and 144 and Block Interleavers 136 and 146 in Figure 2 of Odenwalder used for pre-processing data packets include channel encoders including fixed ¼ rate convolutional encoders.

35 U.S.C. 102(e) rejection of claim 10.

Variable Starting Point Repeaters 138 and 148, BPSK and QPSK Mappers 139 and 149 and Modulator 104 in Figure 2 in Odenwalder used for processing are capable of varying data rate (col. 8, lines 24-40 in Odenwalder teach that Variable Starting Point Repeaters 138 and 148 provide a variety of data rates by repeating, hence are used for obtaining a coding rate according to Table II in col. 8).

35 U.S.C. 102(e) rejection of claim 11.

Adjusting gain according to the current condition is a means for employing a modulation scheme desired for the current condition.

35 U.S.C. 102(e) rejection of claim 12.

Variable Starting point Repeaters 138 and 148, BPSK and QPSK Mappers 139 and 149 and Modulator 104 in Figure 2 in Odenwalder used for processing obtain data from CRC Generators 130 and 140, Tail Bit Generators 132 and 142, ¼ Rate Convolutional Encoders 134 and 144 and Block Interleavers 136 and 146 in Figure 2 of Odenwalder used for pre-processing data packets.

35 U.S.C. 102(e) rejection of claim 13.

Figure 4 in Odenwalder teach that BPSK and QPSK data are combined to produce a single signal output at master amplifier 172.

35 U.S.C. 102(e) rejection of claim 14.

Gain adjustment based on current condition is part of the combining process of Figure 4 in Odenwalder.

35 U.S.C. 102(e) rejection of claim 15.

Variable Starting point Repeaters 138 and 148 in Figure 2 and Gain Adjust Circuits 152-158 within Modulator 104 in Figure 4 are a means for manipulating the combined pre-processed data packets to achieve a coding rate desired for the current condition (col. 8, lines 24-40 in Odenwalder teach that Variable Starting Point Repeaters 138 and 148 provide a variety of data rates by repeating while Gain Adjust Circuits 152-158 modify power, hence are used for obtaining and maintaining a coding rate according to Table II in col. 8).

35 U.S.C. 102(e) rejection of claim 16.

Col. 12, lines 1-9 in Odenwalder teach power control is used to facilitate high speed communication by adjusting power levels. Claim 26 in Odenwalder teach that the power control signal is punctured into the pilot data, hence Odenwalder teaches that

manipulating is performed in accordance with a puncturing scheme that achieves the desired coding rate since the power control signal is used to control Variable Starting point Repeaters 138 and 148 in Figure 2 and Gain Adjust Circuits 152-158 within Modulator 104 in Figure 4 to obtain and maintain a coding rate according to Table II in col. 8 in Odenwalder.

35 U.S.C. 102(e) rejection of claim 17.

Variable Starting point Repeaters 138 and 148, BPSK and QPSK Mappers 139 and 149 and Modulator 104 in Figure 2 in Odenwalder are a processor for processing the pre-processed data packets including a modulator.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Odenwalder; Joseph P. (US 6396804 B2) in view of Wicker (Stephen B. Wicker, "Error Control Systems for Digital Communications and Storage", Prentice-Hall, 1995, pages 392-409).

35 U.S.C. 103(a) rejection of claim 18.

Odenwalder substantially teaches the claimed invention described in claims 1-17 (as rejected above). In addition, Odenwalder teaches that the setup in the Odenwalder patent allows for the use of various retransmission protocols.

However Odenwalder does not explicitly teach the specific use of any specific retransmission protocol.

Wicker, in an analogous art, teaches a specific retransmission protocol whereby processing for the protocol requires waiting for an acknowledgement signal for each of the data blocks and if an acknowledgement signal is not received for one of the data blocks, retransmitting the data block (Section 15.2 on Page 402 in Wicker teaches that each time the transmitter sends out a packet a timer is set and if a response is not received within a reasonable time period, the transmitter assumes a retransmission request and retransmits the packet). Wicker teaches that one of ordinary skill in the art at the time the invention was made would have been highly motivated to use such a scheme when the feedback channels experiences noise degradation (Section 15.2 on Page 402 in Wicker).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Odenwalder with the teachings of Wicker by including use of a specific retransmission protocol whereby processing for the protocol requires waiting for an acknowledgement signal for each of the data blocks and if an acknowledgement signal is not received for one of the data blocks, retransmitting the data block. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of a specific retransmission protocol whereby processing for the protocol requires waiting for an acknowledgement signal for each of the data blocks and if an acknowledgement signal is not received for one of the data blocks, retransmitting the data block would have provided the opportunity to overcome noisy feedback channels.

35 U.S.C. 103(a) rejection of claim 19.

Lines 24-33 on page 398 in Wicker teach that a go-back-N protocol requires buffering in the transmitter to store packets that may need to be retransmitted.

35 U.S.C. 103(a) rejection of claims 20-21.

Since Gain Adjust Circuits 152-158 within Modulator 104 in Figure 4 can be adjusted based on the detected current target error rate channel condition, processing may be the same or different depending on the detected current target error rate channel condition.

5. Claims 22, 23 and 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Odenwalder; Joseph P. (US 6396804 B2) in view of Park; Chang-Soo et al. (US 6397367 B1, hereafter referred to as Park).

35 U.S.C. 103(a) rejection of claim 22.

Odenwalder substantially teaches the claimed invention described in claims 1-17 (as rejected above). In addition, Odenwalder teaches combining a first set of data blocks to produce a first set of combined data blocks (CRC Generator 130 and Tail Bit Generator 132 in Figure 3 of Odenwalder produce a CRC block for an initial data block and a tail block for the CRC block and initial data block; the tail block, CRC block and initial data block are a first set of combined data blocks); combining a second set of data blocks to produce a second set of combined data blocks (CRC Generator 140 and Tail Bit Generator 142 in Figure 3 of Odenwalder produce a CRC block for an initial data block and a tail block for the CRC block and initial data block; the tail block, CRC block and initial data block are a second set of combined data blocks); encoding the first set of combined data blocks to produce a first channel encoded data block (1/4 Rate Convolutional Encoder 134 in Figure 3 of Odenwalder encodes the first set of combined data blocks to produce a first channel encoded data block); encoding the second set of combined data blocks to produce a second channel encoded data block (/4 Rate Convolutional Encoder 144 in Figure 3 of Odenwalder encodes the second set of combined data blocks to produce a second channel encoded data block); combining the

first and second channel encoded data blocks to produce a combined channel encoded data block (Figure 4 of Odenwalder teaches combining the first and second channel encoded data blocks to produce a combined channel encoded data block); and modulating the punctured data block in accordance with a desired modulation scheme. However Odenwalder does not explicitly teach the specific use of puncturing one or more bits from the combined channel encoded data block in accordance with a desired coding rate.

Park, in an analogous art, teaches a puncturer within a Channel Rate Matcher (Figure 13 and Abstract in Park) for puncturing one or more bits from the combined channel encoded data block in accordance with a desired coding rate. Park teaches that one of ordinary skill in the art at the time the invention was made would have been highly motivated to use a rate matcher with puncturing to ensure that the coded symbol rate matches the channel rate (Abstract in Park).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Odenwalder with the teachings of Park by including use of puncturing one or more bits from the combined channel encoded data block in accordance with a desired coding rate. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of puncturing one or more bits from the combined channel encoded data block in accordance with a desired coding rate would have provided the opportunity to ensure that the coded symbol rate matches the channel rate (Abstract in Park).

35 U.S.C. 103(a) rejection of claim 23.

CRC and Tail bits are supplemental bits (CRC Generator 130 and Tail Bit Generator 132 in Figure 3 of Odenwalder produce a CRC block for an initial data block and a tail block for the CRC block and initial data block; the tail block, CRC block and initial data block are a first set of combined data blocks; CRC Generator 140 and Tail Bit Generator 142 in Figure 3 of Odenwalder produce a CRC block for an initial data block and a tail block for the CRC block and initial data block; the tail block, CRC block and initial data block are a second set of combined data blocks).

35 U.S.C. 103(a) rejection of claim 25.

Variable Starting point Repeaters 138 and 148, BPSK and QPSK Mappers 139 and 149 and Modulator 104 in Figure 2 in Odenwalder are a processor for processing the pre-processed data packets; col. 11, lines 11-20 in Odenwalder teach that Gain Adjust Circuits 152-158 within Modulator 104 in Figure 4 are adjusted based on the detected current target error rate channel condition to form processed data packets ready for transmission over the communications channel.

35 U.S.C. 103(a) rejection of claim 26.

Variable Starting Point Repeaters 138 and 148, BPSK and QPSK Mappers 139 and 149 and Modulator 104 in Figure 2 in Odenwalder used for processing are capable of varying data rate (col. 8, lines 24-40 in Odenwalder teach that Variable Starting Point

Repeaters 138 and 148 provide a variety of data rates by repeating, hence are used for obtaining a coding rate according to Table II in col. 8).

35 U.S.C. 103(a) rejection of claim 27.

Adjusting gain according to the current condition is a means for employing a modulation scheme desired for the current condition.

35 U.S.C. 103(a) rejection of claim 28 and 29.

Col. 11, lines 11-16 in Odenwalder teaches that a target error rate is set and if the actual error rate exceeds the target error rate, adjustments are implemented; Note: error rate is a current channel condition and the step of testing whether the actual error rate exceeds the target error rate is a step for monitoring for changes in the current error rate; the Examiner asserts that one of ordinary skill in the art at the time the invention was made would have know that current error rate is a detected quantity and requires specific equipment for detecting the error rate; hence Odenwalder explicitly suggests detecting a change in current transmission error rate condition, determining how the first and second channel encoded data blocks should be combined based on the changed error rate condition and determining a new desired channel rate from the changed error rate condition.

35 U.S.C. 103(a) rejection of claim 30.

Col. 11, lines 11-16 in Odenwalder teaches that a target error rate is set and if the actual error rate exceeds the target error rate, adjustments are implemented; Note: error rate is a current channel condition and the step of testing whether the actual error rate exceeds the target error rate is a step for monitoring for changes in the current error rate; the Examiner asserts that one of ordinary skill in the art at the time the invention was made would have know that current error rate is a detected quantity and requires specific equipment for detecting the error rate. Adjusting gain according to the current condition is a means for employing a modulation scheme desired for the current condition.

6. Claims 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Odenwalder; Joseph P. (US 6396804 B2) and Park; Chang-Soo et al. (US 6397367 B1, hereafter referred to as Park) in view of Wicker (Stephen B. Wicker, "Error Control Systems for Digital Communications and Storage", Prentice-Hall, 1995, pages 392-409).

35 U.S.C. 103(a) rejection of claim 31.

Odenwalder and Park substantially teaches the claimed invention described in claims 1-17 (as rejected above). In addition, Odenwalder teaches that the setup in the Odenwalder patent allows for the use of various retransmission protocols. However Odenwalder and Park does not explicitly teach the specific use of any specific retransmission protocol.

Wicker, in an analogous art, teaches a specific retransmission protocol whereby processing for the protocol requires waiting for an acknowledgement signal for each of the data blocks and if an acknowledgement signal is not received for one of the data blocks, retransmitting the data block (Section 15.2 on Page 402 in Wicker teaches that each time the transmitter sends out a packet a timer is set and if a response is not received within a reasonable time period, the transmitter assumes a retransmission request and retransmits the packet). Wicker teaches that one of ordinary skill in the art at the time the invention was made would have been highly motivated to use such a scheme when the feedback channels experiences noise degradation (Section 15.2 on Page 402 in Wicker).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Odenwalder and Park with the teachings of Wicker by including use of a specific retransmission protocol whereby processing for the protocol requires waiting for an acknowledgement signal for each of the data blocks and if an acknowledgement signal is not received for one of the data blocks, retransmitting the data block. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of a specific retransmission protocol whereby processing for the protocol requires waiting for an acknowledgement signal for each of the data blocks and if an acknowledgement signal is not received for one of the data blocks, retransmitting the data block would have provided the opportunity to overcome noisy feedback channels.

35 U.S.C. 103(a) rejection of claims 32 and 33.

Lines 24-33 on page 398 in Wicker teach that a go-back-N protocol requires buffering in the transmitter to store packets that may need to be retransmitted.

7. Claims 34-44 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Odenwalder; Joseph P. (US 6396804 B2).

35 U.S.C. 103(a) rejection of claim 34 and 52.

Odenwalder teaches an apparatus for processing data packets for transmission over a communications channel (Figures 2 and 3 and col. 5, lines 36-38 in Odenwalder teach a method for processing 20 ms data frames for transmission over a communications channel; Note: a frame is a time slot in which a data transmission unit or a packet is transmitted but is also used interchangeably with data transmission unit or packet), comprising: a first processing stage for pre-processing data packets for transmission over the communications channel including performing a first coding operation on those data packets to form pre-processed data packets (CRC Generators 130 and 140, Tail Bit Generators 132 and 142, ¼ Rate Convolutional Encoders 134 and 144 and Block Interleavers 136 and 146 in Figure 2 of Odenwalder are used for pre-processing data packets for transmission over the communications channel including performing a first coding operation on those data packets to form pre-processed data packets); detecting a current condition (col. 11, lines 11-16 in Odenwalder teaches that a target error rate is

set and if the actual error rate exceeds the target error rate, adjustments are implemented; Note: error rate is a current channel condition and the step of testing whether the actual error rate exceeds the target error rate is a step for monitoring the current error rate; the Examiner asserts that one of ordinary skill in the art at the time the invention was made would have know that current error rate is a detected quantity and requires specific equipment for detecting the error rate; hence Odenwalder explicitly suggests detecting error rate for the purposes of testing whether the actual error rate exceeds the current target error rate channel condition); and a second processing stage for processing the pre-processed data packets based on the detected current condition to form processed data packets ready for transmission over the communications channel (Variable Starting point Repeaters 138 and 148, BPSK and QPSK Mappers 139 and 149 and Modulator 104 in Figure 2 in Odenwalder are a processor for processing the pre-processed data packets; col. 11, lines 11-20 in Odenwalder teach that Gain Adjust Circuits 152-158 within Modulator 104 in Figure 4 are adjusted based on the detected current target error rate channel condition to form processed data packets ready for transmission over the communications channel), wherein the pre-processing does not depend on the current condition (the gain adjust in Modulator 104 in Figure 4 of Odenwalder is carried out independently of CRC Generators 130 and 140, Tail Bit Generators 132 and 142, ¼ Rate Convolutional Encoders 134 and 144 and Block Interleavers 136 and 146 in Figure 2 of Odenwalder used for pre-processing data packets).

However Odenwalder does not explicitly teach the specific use of a detector required in the Odenwalder patent for detecting error rate for the purposes of testing whether the actual error rate exceeds the current target error rate channel condition.

The Examiner asserts that one of ordinary skill in the art at the time the invention was made would have been highly motivated to use a detector in order to implement the apparatus taught in the Odenwalder patent since the Odenwalder patent requires use of a detector in order carry out the step of detecting error rate for the purposes of testing whether the actual error rate exceeds the current target error rate channel condition as taught in the Odenwalder patent (col. 11, lines 11-16 in Odenwalder).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of the Odenwalder patent by including an additional step of a detector required in the Odenwalder patent for detecting error rate for the purposes of testing whether the actual error rate exceeds the current target error rate channel condition. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that a detector required in the Odenwalder patent for detecting error rate for the purposes of testing whether the actual error rate exceeds the current target error rate channel condition would have provided the opportunity to implement the apparatus taught in the Odenwalder patent since the Odenwalder patent requires use of a detector in order carry out the step of detecting error rate for the purposes of testing whether the actual error rate exceeds the current target error rate channel condition as taught in the Odenwalder patent (col. 11, lines 11-16 in

Odenwalder).

35 U.S.C. 103(a) rejection of claim 35.

Odenwalder substantially teaches the claimed invention described in claim 32 (as rejected above). In addition, Odenwalder teaches Gain Adjust Circuits 152-158 within Modulator 104 in Figure 4 are adjusted based on the detected current target error rate channel condition to form processed data packets ready for transmission over the communications channel and a power control signal is used to control Variable Starting point Repeaters 138 and 148 in Figure 2 and Gain Adjust Circuits 152-158 within Modulator 104 in Figure 4 to obtain and maintain a coding rate according to Table II in col. 8 in Odenwalder.

However Odenwalder does not explicitly teach the specific use of the controller required to produce the power control signal taught in the Odenwalder patent.

actual error rate exceeds the current target error rate channel condition.

The Examiner asserts that one of ordinary skill in the art at the time the invention was made would have been highly motivated to use a controller in order to implement the apparatus taught in the Odenwalder patent since the Odenwalder patent requires use of a controller in order carry out the step of producing a power control signal as taught in the Odenwalder patent (Claim 26 and Col. 12, lines 1-9 in Odenwalder alder).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of the Odenwalder patent by including use of the controller required to produce the power control signal taught in the Odenwalder

patent. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of the controller required to produce the power control signal taught in the Odenwalder patent would have provided the opportunity to implement the apparatus taught in the Odenwalder patent since the Odenwalder patent requires use of a controller in order carry out the step of producing a power control signal as taught in the Odenwalder patent (Claim 26 and Col. 12, lines 1-9 in Odenwalder alder).

35 U.S.C. 103(a) rejection of claim 36.

Convolutional encoders 134 and 144 in Figure 3 of Odenwalder are fixed ¼ rate convolutional encoders.

35 U.S.C. 103(a) rejection of claim 37.

Block Interleavers 136 and146 in Figure 3 of Odenwalder are used for combining blocks into block-interleaved data.

35 U.S.C. 103(a) rejection of claim 38.

CRC Generators 130 and 140 in Figure 3 of Odenwalder add supplemental redundant bit prior to block interleaving. Note: CRC is error detection and correction information.

35 U.S.C. 103(a) rejection of claim 39.

CRC Generators 130 and 140 in Figure 3 of Odenwalder add supplemental redundant bit prior to block interleaving. Note: CRC is error detection and correction information.

35 U.S.C. 103(a) rejection of claim 40.

Variable Starting Point Repeaters 138 and 148, BPSK and QPSK Mappers 139 and 149 and Modulator 104 in Figure 2 in Odenwalder used for processing are capable of varying data rate (col. 8, lines 24-40 in Odenwalder teach that Variable Starting Point Repeaters 138 and 148 provide a variety of data rates by repeating, hence are used for obtaining a coding rate according to Table II in col. 8).

35 U.S.C. 103(a) rejection of claim 41.

Adjusting gain according to the current condition is a means for employing a modulation scheme desired for the current condition.

35 U.S.C. 103(a) rejection of claim 42.

Figure 4 in Odenwalder teach that BPSK and QPSK data are combined to produce a single signal output at master amplifier 172.

35 U.S.C. 103(a) rejection of claim 43.

Gain adjustment based on current condition is part of the combining process of Figure 4 in Odenwalder.

35 U.S.C. 103(a) rejection of claim 44.

Variable Starting point Repeaters 138 and 148 in Figure 2 and Gain Adjust Circuits 152-158 within Modulator 104 in Figure 4 are a means for manipulating the combined pre-processed data packets to achieve a coding rate desired for the current condition (col. 8, lines 24-40 in Odenwalder teach that Variable Starting Point Repeaters 138 and 148 provide a variety of data rates by repeating while Gain Adjust Circuits 152-158 modify power, hence are used for obtaining and maintaining a coding rate according to Table II in col. 8).

8. Claims 45 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Odenwalder; Joseph P. (US 6396804 B2) in view of Wicker (Stephen B. Wicker, "Error Control Systems for Digital Communications and Storage", Prentice-Hall, 1995, pages 392-409).

35 U.S.C. 103(a) rejection of claims 45 and 53.

Odenwalder substantially teaches the claimed invention described in claims 34-44 (as rejected above). In addition, Odenwalder teaches that the setup in the Odenwalder patent allows for the use of various retransmission protocols.

However Odenwalder does not explicitly teach the specific use of any specific retransmission protocol.

Wicker, in an analogous art, teaches a specific retransmission protocol whereby processing for the protocol requires waiting for an acknowledgement signal for each of

the data blocks and if an acknowledgement signal is not received for one of the data blocks, retransmitting the data block (Section 15.2 on Page 402 in Wicker teaches that each time the transmitter sends out a packet a timer is set and if a response is not received within a reasonable time period, the transmitter assumes a retransmission request and retransmits the packet). Wicker teaches that one of ordinary skill in the art at the time the invention was made would have been highly motivated to use such a scheme when the feedback channels experiences noise degradation (Section 15.2 on Page 402 in Wicker). Note: Lines 24-33 on page 398 in Wicker teach that a go-back-N protocol requires buffering in the transmitter to store packets that may need to be retransmitted.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Odenwalder with the teachings of Wicker by including use of a specific retransmission protocol whereby processing for the protocol requires waiting for an acknowledgement signal for each of the data blocks and if an acknowledgement signal is not received for one of the data blocks, retransmitting the data block. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of a specific retransmission protocol whereby processing for the protocol requires waiting for an acknowledgement signal for each of the data blocks and if an acknowledgement signal is not received for one of the data blocks, retransmitting the data block would have provided the opportunity to overcome noisy feedback channels.

9. Claims 46, 47 and 49-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Odenwalder; Joseph P. (US 6396804 B2) in view of Park; Chang-Soo et al. (US 6397367 B1, hereafter referred to as Park).

35 U.S.C. 103(a) rejection of claim 46.

Odenwalder substantially teaches the claimed invention described in claims 1-17 (as rejected above). In addition, Odenwalder teaches combining a first set of data blocks to produce a first set of combined data blocks (CRC Generator 130 and Tail Bit Generator 132 in Figure 3 of Odenwalder produce a CRC block for an initial data block and a tail block for the CRC block and initial data block; the tail block, CRC block and initial data block are a first set of combined data blocks); combining a second set of data blocks to produce a second set of combined data blocks (CRC Generator 140 and Tail Bit Generator 142 in Figure 3 of Odenwalder produce a CRC block for an initial data block and a tail block for the CRC block and initial data block; the tail block, CRC block and initial data block are a second set of combined data blocks); encoding the first set of combined data blocks to produce a first channel encoded data block (1/4 Rate Convolutional Encoder 134 in Figure 3 of Odenwalder encodes the first set of combined data blocks to produce a first channel encoded data block); encoding the second set of combined data blocks to produce a second channel encoded data block (/4 Rate Convolutional Encoder 144 in Figure 3 of Odenwalder encodes the second set of combined data blocks to produce a second channel encoded data block); combining the

first and second channel encoded data blocks to produce a combined channel encoded data block (Figure 4 of Odenwalder teaches combining the first and second channel encoded data blocks to produce a combined channel encoded data block); and modulating the punctured data block in accordance with a desired modulation scheme. However Odenwalder does not explicitly teach the specific use of puncturing one or more bits from the combined channel encoded data block in accordance with a desired coding rate.

Park, in an analogous art, teaches a puncturer within a Channel Rate Matcher (Figure 13 and Abstract in Park) for puncturing one or more bits from the combined channel encoded data block in accordance with a desired coding rate. Park teaches that one of ordinary skill in the art at the time the invention was made would have been highly motivated to use a rate matcher with puncturing to ensure that the coded symbol rate matches the channel rate (Abstract in Park).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Odenwalder with the teachings of Park by including use of puncturing one or more bits from the combined channel encoded data block in accordance with a desired coding rate. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of puncturing one or more bits from the combined channel encoded data block in accordance with a desired coding rate would have provided the opportunity to ensure that the coded symbol rate matches the channel rate (Abstract in Park).

35 U.S.C. 103(a) rejection of claim 47.

CRC and Tail bits are supplemental bits (CRC Generator 130 and Tail Bit Generator 132 in Figure 3 of Odenwalder produce a CRC block for an initial data block and a tail block for the CRC block and initial data block; the tail block, CRC block and initial data block are a first set of combined data blocks; CRC Generator 140 and Tail Bit Generator 142 in Figure 3 of Odenwalder produce a CRC block for an initial data block and a tail block for the CRC block and initial data block; the tail block, CRC block and initial data block are a second set of combined data blocks).

35 U.S.C. 103(a) rejection of claim 49.

Variable Starting point Repeaters 138 and 148, BPSK and QPSK Mappers 139 and 149 and Modulator 104 in Figure 2 in Odenwalder are a processor for processing the pre-processed data packets; col. 11, lines 11-20 in Odenwalder teach that Gain Adjust Circuits 152-158 within Modulator 104 in Figure 4 are adjusted based on the detected current target error rate channel condition to form processed data packets ready for transmission over the communications channel.

35 U.S.C. 103(a) rejection of claim 50.

Variable Starting Point Repeaters 138 and 148, BPSK and QPSK Mappers 139 and 149 and Modulator 104 in Figure 2 in Odenwalder used for processing are capable of varying data rate (col. 8, lines 24-40 in Odenwalder teach that Variable Starting Point

Repeaters 138 and 148 provide a variety of data rates by repeating, hence are used for obtaining a coding rate according to Table II in col. 8).

35 U.S.C. 103(a) rejection of claim 51.

Adjusting gain according to the current condition is a means for employing a modulation scheme desired for the current condition.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chen; Tao et al. (US 5923650 A) teaches a method and apparatus for reverse link rate scheduling in a communication system having a variable data transmission rate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (703) 308-7066. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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